Updated Preliminary Report on the January 14-15, 2005 Multi Species Mass Stranding in North Carolina

January 13, 2006

- On January 14, 2005, 33 pilot whales (*Globicephala macrorhynchus*) were reported stranded near Oregon Inlet, NC, and 1 minke whale (*Balaenopatera acurostrata*) was reported stranded in Corolla, NC. On January 15, 2005, two dwarf sperm whales (*Kogia sima*) were reported stranded north of Cape Hatteras, NC. The following results are provided as updates on the investigation.
- Of these stranded cetaceans, samples from 28 animals representing three species (25 pilot whales, 1 minke whale, 2 dwarf sperm whales) have undergone histologic examination. Tissue suites examined were complete (n = 19), or partial including either heads or subsampling of internal organs (n = 9).
- The investigative team has finished the necropsies of additional pilot whale heads, completed some additional disease testing, and consulted with four additional pathologists (some of whom had also reviewed the histopathology from the Canary Island strandings).
- Female pilot whales predominated (78%, 21/27). The pregnancy rate was 29% (6/21). Animals were primarily adults and sub-adults.
- Ears have not yet been examined.
- Observed lesions were found in all systems. Denominators reflect complete tissue suites (n = 19), or with reference to the nervous system (n = 26). In order of highest frequency, affected systems included: respiratory (89%, 17/19), hematolymphoreticular (84%, 16/19), digestive (74%, 14/19), nervous (38%, 10/26), hepatobiliary (53%, 10/19), urinary (47%, 9/19), reproductive (42%, 8/19), cardiovascular (37%, 7/19), musculoskeletal (21%, 4/19), integumentary (21%, 4/19), sensory (21%, 4/19), body cavities (21%, 4/19), and endocrine (5%, 1/19). Fibrosed intra-abdominal granulomas constituted body cavity lesions in three animals.
- Lesions directly or contributatory to stranding, and/or death were found in 4 pilot whales and 1 dwarf sperm whale.
- Incidental lesions (e.g., dilated central veins) were present, but were not likely to play a significant role in the stranding
- Meningeal hemorrhage (n = 1), pulmonary hemorrhage (n = 3), and focal to multifocal mandibular fat and acoustic fat hemorrhage (n = 3) were observed in pilots whales and dwarf sperm whales. Upon further analysis and expert consultation, microemboli in the liver were not confirmed.
- Hemorrhage within the meninges and lung is not a pathognomonic feature of sonar or blast injury, but could indicate trauma (although no fractures, any other superficial bruising or superficial hemorrhages were observed) or severe respiratory effort (agonal change).
- In summary, there was no evidence of disseminated infection (viral, bacterial, or protozoal), direct blunt trauma, or recent fishery interactions. Tissues were relatively fresh.
- Items remaining: final report from the CT and MRI scans after review by radiologists, aging, stomach contents analyses, special stains of tissues, pathology review summation, serology and final synthesis of data.
- Further review and analyses of histologic sections and special stains may lead to histological diagnosis amendments or addendums.
- Further analyses are ongoing and a full report is expected by March 2006.
- The full report will be released after a two step peer review process in accordance with NOAA's policies for implementation of the Information Quality Act.